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THE RELATION OF THE MOVEMENT FOR VOCATIONAL AND INDUSTRIAL TRAINING TO THE SECONDARY SCHOOLS ¹

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The movement for vocational and industrial education is sociological because it is an attempt on the part of society at large to bring educational ideals into harmony with present social and industrial conditions, and it is pedagogical because it represents the conscious efforts of school men to bring about a closer agreement between educational practices and the theories set forth by the science of education.

Too frequently our acceptance of the doctrine of the value of the concrete has become a mere abstraction. We have been so busy stating principles that we have failed to provide in any adequate way for the practice, which indeed seems to be far more difficult, certainly is more expensive, and at the present stage is much more important. Of the six hundred school systems in the United States having manual training, three hundred give less than an hour a week to it, and only thirty-seven devote as much as half an hour a day to the subject. When one remembers the volumes which have been written enlarging on the vast and beneficent educational and industrial results which the introduction of hand-work into the schools was to accomplish, one can comprehend why disappointment has been so frequently expressed regarding the results.

But we agree that there is now a movement, and a very general movement, for a more adequate application of accepted principle. Like all great movements, it has been slow in getting under way, and, as a result, there has been considerable uncertainty in the minds of all regarding its direction, meaning, and purpose. Gradually, however, it is becoming clear that it means

¹ Read at the Conference of Academies and Secondary Schools in Relations with the University of Chicago, November 12, 1910.

an effort to secure equal or proportional representation of all vocations in our courses of study, instead of emphasizing unduly the school subjects which lead more especially to professional training.

The United States Commissioner of Education says:

The Bureau of Education will lend its aid to any earnest endeavor looking toward fixing the content of meaning which the comparatively new term *industrial education* is to have in American educational terminology. A wide variance of usage of the term now prevails. Some would give it the broader meaning and make it include every form of instruction that pertains in any way to training for the industries. On the other hand, there are those who would limit its meaning to specific vocational training for industrial pursuits.

I should define vocational training as that training which seeks to create vocational interest, to develop intelligent appreciation of the social bearings of some particular kind of work or occupation, and to provide some opportunity for participation in the actual processes of that occupation. Vocational training is the general term, including professional training, commercial training, agricultural training, training in household economics, and industrial training.

Thus *industrial* education means the complete and appropriate education of the industrial worker. It means a training which is definitely planned to create industrial interest, to develop industrial intelligence and a measure of technical skill through all practicable means, including an opportunity for some actual practice in the processes employed in a particular trade or group of industries.

I am convinced that the greatest need of today is for the appropriate education of those who are to enter the lower or intermediate grades of industrial work. An appropriate education will not simply fit them for this work, but will so equip them that they may eventually pass through it to a grade higher—always with the possibility and hope of progress. Since these lower grades of work are largely filled by the children who leave school at or near the fourteenth year, the problem is one primarily, though not entirely, for the elementary schools, or

possibly for new and special schools for children now in the elementary or lower high-school grades.

This raises the question as to whether industrial education is to be given by the regular schools, or by special, separate schools.

It should be stated that some of the most eminent authorities in the country have advocated the separate institution. President-emeritus Eliot of Harvard University, in an address before the National Society for the Promotion of Industrial Education, said:

Industrial education ought to mean trade schools, and nothing but trade schools; that is, schools directed primarily and expressly to the preparation of young men and women for trades. . . . Since they would be new schools, distinct from the existing public schools, they necessarily involve additional cost; but, moreover, they involve new educational requirements on the part of society, requirements to a later age than we have been accustomed to.

The Committee of Ten of the National Society for the Promotion of Industrial Education reported the following definitions:

The term *industrial education* should be used to mean training for the intelligent practice of any trade, including, of course, agriculture. It includes training in all the processes of a trade and in the theoretical foundations of that trade. It is intended to develop both industrial intelligence and skill in the particular vocation. It does not properly begin until the pupil is at least fourteen years old.

Industrial schools are those established with the purpose of training boys and girls, men and women, in industrial efficiency by means of industrial education. The purpose of such a school is therefore not general education, but specialized education. . . . An industrial school lays such a foundation in the essentials of a trade and the whole of it that, with subsequent practice and experience in his employer's trade, the pupil may quickly become a skilled workman. . . . The school gives not only such acquaintance with the methods, tools, and materials which enter into the trade as will enable the student to do his work with a certain degree of facility, but it inculcates efficiency and workmanlike methods, careful habits, intelligent planning, and economy and care in the use of important materials and tools. . . . Under such a conception industrial schools are not a part of existing public schools, but a supplement to them, meeting a need which has arisen since the beginning of the last century with the evolution of the world's history and commerce.

The former Industrial Commission of the State of Massachusetts was definitely committed to the policy of the separate industrial school, and it did much to fix opinions on this question throughout the country. The divided responsibility and the natural jealousy of the two educational boards, the long-established State Board of Education and the new Industrial Commission, resulted in the enactment of laws providing that the industrial schools, the wards of the Industrial Commission, must be separate and independent schools in order to receive the state subsidy.

Since the two boards have been superseded by a single commission, however, the tendency has been to concentrate rather than to divide the responsibility for the management of the educational work of the cities and towns, and even to provide for actual affiliation of the new industrial schools with the existing public schools. The local school boards are often made the agents of the state, directing alike the old and the new work.

If the definitions of the Committee of Ten and the original policy of the State of Massachusetts should gain common acceptance, the movement for industrial education would make slight demands upon the existing secondary schools. In fact it would probably relieve them from some of the relatively unprofitable work they are now doing with those for whom the traditional training is a misfit.

But this policy of absolute separation shows signs of breaking down, even in Massachusetts, and it has been insisted upon in no other state. Sufficient assurance of vocational emphasis will be secured by the now common practice of appointing advisory boards composed of representatives of the industry, both employers and workmen. I venture to predict that, involving as it does the training of the majority of our children for the crucial years from twelve to sixteen, industrial education is now and will permanently remain the business of the public schools.

It has been intimated that industrial education is primarily a problem for the elementary schools. There is, however, one important question affecting the matter, namely, "What is the

basis of differentiation between the elementary and the secondary school?"

If the basis recently adopted by the State of New York should become the commonly accepted one, a tremendous task would confront the secondary school. In fact the problem in that event will be shifted from the elementary to the secondary school. The policy of the state, as indicated by the syllabus recently issued, seems to be founded on those overworked but underapplied educational theories to which reference has been made. Briefly stated they are as follows:

Education should be adapted to the individual needs of the pupil. These needs vary greatly with different children, and with children in different classes of society. While the word "classes" is hateful to an American it is more equitable to recognize this truth than to ignore it. These differences in present opportunity and probable future needs become peculiarly apparent to the child and his parents at about his twelfth year, as roughly marking the beginning of adolescence. Up to this time the education of all children may be conducted on approximately the same lines, but at this time the child commonly differentiates himself, and at this time we should provide for the differentiation of his education. In the words of a member of the State Education Department:

The distinction at present is purely formal and fortuitous and is evidently made at too late a period. Whatever may be the arbitrary and external organization of education, the actual secondary stage in the development of boys and girls will inevitably begin when the *differences* in their tastes, capacities, and ambitions become more conspicuous and important than their likenesses. The difference between elementary and secondary development is thus a matter of life, not a mere matter of convenient arrangement.

In most schools today the manual-training work of the boys and girls is differentiated in the upper grades of the elementary schools. In some cities special preparatory schools or classes are open to boys and girls at twelve years of age when it has been decided that they are to go to college. What New York State proposes is that differentiation shall be possible for all at

the end of the sixth grade. In the syllabus issued this summer is the following statement:

In determining the work of the elementary schools, a six-year course has been prepared. The course is general in character and adapted to *all* children until that period of their development when they manifest different interests, mental powers, and tastes, which is usually at the age of twelve.

This six-year course is followed by an intermediate course of two years covering the usual seventh and eighth grades and rounding out the elementary course. In this two-year course the work begins to differentiate. Work is planned which leads to the long-established high-school courses, to commercial courses, and to industrial courses. Certain work previously done in the high-school course has been brought down into this two-year course to economize the pupils' time, to reduce the pressure and strain under which high-school students have labored during their first years in high school, and to interest pupils in work which will induce them to remain in school for a greater number of years.

Ideal as this plan may be, it will be years before it will be widely adopted. Meanwhile the needs of the majority of our children will be as great and as little cared for as now unless the schools, especially the secondary schools, adopt a more sympathetic and a more democratic attitude toward those who cannot plan to spend more than one or two years in the high school. We should be the more ready to assume this attitude when we see the rapid increase in high-school enrolment and realize the sacrifice which frequently is being made to enable the child to stay in school and the apparent futility of the sacrifice in scores of cases because the existing work is so ill adapted to the capacity and probable needs of the children.

Given the willingness of the secondary schools to serve these children, *how* can the service be rendered? It seems to me that we must provide not simply shorter courses, diluted courses, but courses with greater diversity of purpose. These courses must be administered with as clear an understanding of their import and with as great a respect for the seriousness and value of the work as those which lead to higher institutions of learning. Especially is it important to study the methods which have proved effective in industrial schools, in some cases with children who were failures when judged by the standards of the traditional schools.

The principles underlying the methods employed in these schools are:

- 1) The vocational idea is made paramount.
- 2) The courses of study are so arranged that the subject-matter is clearly related to the vocation, or group of vocations, for which the school is preparing its pupils.
- 3) This subject-matter is such that it would be of immediate, practical value to the pupil should he be forced to discontinue his school attendance at any time.
- 4) This subject-matter is arranged with less regard to logical progression or preparation for some future training than to the immediate demands of the practical or vocational work in hand.
- 5) This work is real work in which the pupil actually participates. Articles are frequently made for the use of the school department or other city institutions, and sometimes for sale in the open market.
- 6) The standards of attainment are those of the outside world; results are measured by the actual excellence of the finished work, and by the money value of the time and the material consumed in its production.
- 7) Conditions of work are made to conform as closely as is possible and desirable to actual shop conditions. Practice varies, but the tendency is toward a seven- or eight-hour day, with the school in session for the entire year, with only brief vacations.
- 8) Textbooks are sparingly used, most texts being worked out by the teacher under the actual conditions of the particular school.
- 9) Preference on the teaching force is given to men and women who have had practical shop or commercial experience, this experience, in fact, being considered by some to be even more essential than traditional schooling. This, it will be noted, is exactly the opposite of the principle which has governed the selection of manual-training teachers for the past twenty years.
- 10) These schools are largely controlled or at least influenced by advisory boards composed of merchants, manu-

facturers, and workmen, men who know more about commerce and industry than about educational institutions and practices.

Perhaps the best way to gain an appreciation of these principles is to examine briefly the practices of two practical vocational high schools. I have chosen the Cleveland Technical High School and the Boston High School of Commerce.

The Cleveland Technical High School is open only to graduates of the elementary schools. It aims to give a training which will fit its pupils for the higher grades of industrial work or for industrial leadership. Courses are offered in cabinet-making, pattern-making, foundry practice, machine-shop practice, architectural and machine draughting, printing and bookbinding, pottery, dressmaking, millinery, catering and cooking.

There is a four-year course, relatively strong in English, mathematics, and science throughout, the science being that pertaining to the particular vocation.

Mathematics is at first "shop mathematics," with emphasis on the simple handling of numbers. Later arithmetic, algebra, geometry, and trigonometry are taught as one subject, and largely only where applicable to the technical work.

The geography, history, and English also relate to the industry. Shop visits are made the basis of written work, and stories of invention and industrial discovery and evolution are read.

While the technical work is at first more or less general in character, during the last two years a pupil may devote twenty-five hours a week to particular trade training. This, however, is optional.

The school is in session forty-eight weeks a year, that is, four quarters of twelve weeks each, with a vacation of one week between quarters. Twelve quarters are required for graduation.

The course of study of the Boston High School of Commerce provides the general group of studies usually pursued in high schools, except ancient languages, but these subjects are all taught with the constant view of preparing the pupils to use them in business life. In addition two or more of the following sub-

jects are taken by all pupils: bookkeeping, accounting, type-writing, stenography, drawing, commercial design, chemistry, and auditing.

From ten to twenty lectures are given by laymen on each of the following topics: advertising, salesmanship, business organization, business survey of New England, economic resources of the United States.

One unique feature of the school is a special postgraduate course (fifth year), organized on a co-operative part-time basis, the boys working in the school in the morning and for their employers down-town in the afternoon. This course offers the following subjects: money and banking, corporation finance, transportation, labor problems, business organization, accounting, modern languages, industrial chemistry, and English.

The school is in session six hours a day, and the new building, now in the hands of the architects, will be located in the business district.²

A thorough examination of the plans of several other typical industrial schools would be even more suggestive of possible modifications in our traditional high schools, but we have time for generalizations only.

There are three rather distinct types of public industrial schools, differing from each other in one or more important particulars. These are the part-time co-operative school, the new type vocational high school, and the new type secondary school.

The part-time co-operative plan is an arrangement whereby the public school provides the book work and the co-operating manufacturer or group of manufacturers provides the facilities for shop practice, including the services of the shop teacher, and pays the boy for his time.

This plan has many advantages, but two serious defects. It has the unqualified condemnation of organized labor, and it serves only the most able boys, since the manufacturer reserves the right to dismiss any boy after a short trial period. This is not consistent with the present conception of the duty of the

² The plan of summer apprenticeship which has been developed in this school was described in the *School Review* for January, 1911, pp. 34-41.

public schools, and it does relatively little toward the solution of the problem of unskill and employment. A modification of this plan, to which there seems to be no objection, results in the furnishing of instruction by the public school to boys and girls already at work who can devote a part of each day to study. This also involves the co-operation of the employer. Undoubtedly the co-operative plan will be improved and extended and widely used.

Three different grades of this type of school are well illustrated by the Cincinnati, Fitchburg, and Beverly experiments. The first is conducted by the University of Cincinnati, the second by the regular public high school of Fitchburg, Massachusetts, and the third by the elementary school of Beverly, Massachusetts.

The new type of high school admits boys and girls only on graduation from an elementary school, and furnishes both the technical vocational work and the related book work, giving all instruction within its own walls and by its own teaching force. This new type of high school differs from the old manual-training high school in that it aims to fit its pupils directly for their life-work and not for a higher technical school. Excellent illustrations of this type of school are the Technical High School of Cleveland, the Lane Technical High School of Chicago, and the High School of Commerce of Boston.

The new type of secondary school is of secondary grade only in accordance with the idea suggested by the New York State Education Department's plan discussed above. It admits boys and girls of fourteen years of age, and in some instances even younger. While it is desired that the pupil shall have passed the sixth grade, failure to have done so is not an absolute barrier. Age, necessity, and ability to work are the prime requisites. Illustrations of this type of school are the Secondary Industrial School of Columbus, Georgia, the Factory School of Rochester, New York, the Independent Industrial School of Newton, Massachusetts, the Trade School for Girls and the Pre-Apprentice School of Printing and Bookbinding, of Boston. The Secondary Industrial School of Columbus was the first

school of its kind in the United States to be established as a part of the public-school system and supported by public funds.

A description of what has already been accomplished in this field of education throughout the United States may be had from two recent reports, that of the Committee of the National Education Association on the Place of Industries in Public Education, and *Bulletin No. 11* of the National Society for the Promotion of Industrial Education, a descriptive list of existing industrial schools.

These reports give descriptions of isolated and unrelated experiments in many cities. To my mind an even more significant report is that of the Superintendent of Schools of Boston, which contains an account of a complete scheme of a single school system. The plan is probably the most complete in the country. Experiments are well under way illustrative of every grade of school. This full discussion of vocational and industrial training, together with the briefer treatment of the same subjects in the superintendent's reports for 1908 and 1909, shows the evolution of a comprehensive plan and clearly indicates the place which vocational training should have in the public-school system of a large city.

And after all it is precisely at this point that we are to find the most vital relation of the movement for vocational training to the work of the secondary schools, namely, in the influence of the secondary schools on the entire school system. Too long has the policy of the lower school been fixed by the demands of the higher, with the result that the training received in the lower is of greatest value to those who can go on to the higher or the highest. Vocational education will require such a reorganization of school systems that equally appropriate training will be provided for the 83 per cent of the pupils who conclude their school life before the seventeenth year.